

REMARKS/ARGUMENTS

Reconsideration and allowance of this application are respectfully requested. Currently, claims 1-28 are pending in this application.

Rejections Under 35 U.S.C. §103:

Claims 1-5, 8-11, 13-19, 22-25, 27 and 28 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over EP '351 in view of Anzai (U.S. '893) or Kunimoto (U.S. '223, hereinafter "Kunimoto"), and Skoog or Kato et al. (U.S. '811, hereinafter "Kato"), and Shirai et al. (U.S. '189, hereinafter "Shirai") or Stetter et al. (U.S. '310, hereinafter "Stetter"). Applicant respectfully traverses this rejection.

In order to establish a *prima facie* case of obviousness, all the claim limitations must be taught or suggested by the prior art. The combinations of cited art noted above each fails to teach or suggest all of the claim limitations. For example, each of the combinations fails to teach or suggest "wherein the guard pattern is arranged on at least a portion of the measurement substrate, the at least portion of the measurement substrate is located between the signal input pattern and the different potential pattern, the conductive pattern portion includes a signal measurement pattern constituting the signal processing circuit, a potential of the signal measurement pattern depends on that of the signal input pattern, the signal processing circuit comprises an operational amplifier, the signal input pattern is connected to a non-reverse input terminal of the operational amplifier so that the potential of the signal input pattern is input to the operational amplifier via the non-reverse input terminal thereof, an output terminal of the operational amplifier is connected to a reverse input terminal thereof so that the operational amplifier is configured to output, via the output terminal, a voltage that substantially equals to the potential of the signal input pattern, and the guard pattern is electrically connected to the signal measurement pattern," as required by independent claim 1 and its dependents. Each of the

above-noted combinations also fails to teach or suggest “wherein the guard pattern is arranged on at least a portion of the measurement substrate, the at least portion of the measurement substrate is located between the signal input pattern and the different potential pattern, the conductive pattern portion includes a signal measurement pattern constituting the signal processing circuit, a potential of the signal measurement pattern depends on that of the signal input pattern, the signal processing circuit comprises an operational amplifier, the signal input pattern is connected to a non-reverse input terminal of the operational amplifier so that the potential of the signal input pattern is input to the operational amplifier via the non-reverse input terminal thereof, an output terminal of the operational amplifier is connected to a reverse input terminal thereof so that the operational amplifier is configured to output, via the output terminal, a voltage that substantially equals to the potential of the signal input pattern, and the guard pattern is electrically connected to the signal measurement pattern,” as required by independent claim 15 and its dependents.

Through the above-identified limitations, a guard pattern is located between a signal input pattern and a different potential pattern. This prevents a current from leaking from the signal input pattern and a current from externally flowing into the signal input pattern.

The invention of claims 1 and 15 further requires a conductive pattern portion which includes a signal measurement pattern constituting the signal processing circuit, and a potential of the signal measurement pattern depending on that of the signal input pattern. Additionally, the invention of independent claims 1 and 15 requires the signal processing circuit for measuring the sensor current outputted from the gas sensor comprising an operational amplifier. The signal input pattern is connected to a non-reverse input terminal of the operational amplifier so that the potential of the signal input pattern is input to the operational amplifier via the non-reverse input terminal thereof. An output terminal of the operational amplifier is connected to a reverse input terminal thereof. Because the

potential of the signal input pattern is input to the operational amplifier via its non-reverse input terminal, the configuration of the operational amplifier can output, via the output terminal, a voltage that substantially equals to the potential of the signal input pattern.

Furthermore, as required by claims 1 and 15, the guard pattern is electrically connected to the signal measurement pattern. Because the potential of the signal measurement pattern depends on that of the signal input pattern, the configuration of the operational amplifier and the electrical connection between the guard pattern and the signal measurement pattern allows the potential of the guard pattern to depend on that of the signal input pattern. Accordingly, even if the potential of the signal input pattern fluctuates due to external factors or another factor, the invention of claim 1 and 15 each causes the potential of the guard pattern to fluctuate in conjunction with the fluctuation of the signal input pattern. This makes it possible to prevent fluctuations of the potential difference between the guard pattern and the signal input pattern. Even if external conditions cause the potential of the signal input pattern to fluctuate, it is therefore possible to prevent the potential difference between the guard pattern and a signal input pattern from fluctuating.

Each of the above cited combinations of references fail to teach or suggest the above-described specific structure based on the relationships between the operational amplifier, the signal input pattern, and the guard pattern. Each of the combinations also fail to even appreciate the advantage (i.e., preventing fluctuations as described above) achieved by this specific structure.

Accordingly, Applicant respectfully requests that the rejection of still pending claims 1-5, 10-11, 13-19, 24-25 and 27-28 under 35 U.S.C. §103 be withdrawn.

Claims 6-7 and 20-21 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over EP '351 in view of Anzai or Kunimoto, and Skoog or Kato, and Shirai or Stetter, and further in view of Varker (U.S. '190). Claims 12 and 26 were rejected under 35 U.S.C. §103 as allegedly being

unpatentable over EP '351 in view of Anzai or Kunimoto, and Skoog or Kato, and Shirai or Stetter, and further in view of Mochizuki et al. (U.S. '855, hereinafter "Mochizuki"). Applicant respectfully traverses these rejections. Each of these claims depends directly or indirectly from base independent claim 1 or 15. Neither Varker nor Mochizuki resolves the above-described deficiencies of the above-cited combinations of art with respect to claim 1 or 15. Applicant therefore requests that the rejection of claims 6-7, 12, 20-21 and 26 under 35 U.S.C. §103 be withdrawn.

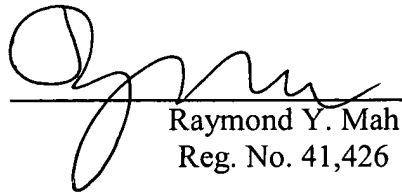
Conclusion:

Applicant believes that this entire application is in condition for allowance and respectfully requests a notice to this effect. If the Examiner has any questions or believes that an interview would further prosecution of this application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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By: _____


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